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10/591,690	06/18/2007	Andrew Simon Oldfield	11801-003-999	3033
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JONES DAY 222 EAST 41ST ST NEW YORK, NY 10017			EXAMINER WEISS, PAMELA HL	
			ART UNIT	PAPER NUMBER
			1797	
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			07/21/2010	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/591,690

**Applicant(s)**

OLDFIELD, ANDREW SIMON

**Examiner**

PAMELA WEISS

**Art Unit**

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 June 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-7,9-11,15,19 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-7,9-11,19 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Applicant's arguments filed June 1, 2010 with respect to the claims have been considered but are moot in view of the new ground(s) of rejection necessitated by amendment of the claims.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 3-7, and 9-10, 15, 19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenbeek (US 6,462,001) in view of McGee (US 3,717,672)

#### Regarding Claims 15, 4-7, 9-10:

Kenbeek '001 discloses a method of reducing wear in an automotive engine by addition of and automotive engine oil comprising an ester additive and an antiwear system which may be used in multi-grade gear oil with mineral oil or polyalphaolefins

(C6 L5-10) automotive engine oil comprising a base oil (C9 L2-4 esters used with other base mineral oils) and an antiwear additive system (C4 L53-55) comprising an ester which is the reaction product of

(a) at least one polyfunctional alcohol (C6 L17) such as pentaerythritol (meeting the limitation of **claim 4** where  $n=4$  and R is a  $C_5$  group and falling within the molecular weight range of from 50 to 650);

(b) a dimer fatty acid; (C6 L20-25) and

(c) at least one of an aliphatic dicarboxylic acid having 5 to 18 carbon atoms, an aliphatic monocarboxylic acid having 5 to 24 carbon atoms or 7 to 24 carbons (C6 L28-40 wherein Kenbeek discloses a monocarboxylic acid having from 7 to 22 carbons falling within the claimed range) and an aliphatic monofunctional alcohol having 5 to 24 carbon atoms (C6 L35-40 meeting the limitations of **claim 23**) a mono-functional alcohol having 14 to 24 carbons falling within the claimed range) with the resultant ester having a kinematic viscosity at 100 °C ranging from 30-1000 mm<sup>2</sup>/s (C6 L38-41 ) and overlapping the claimed non- polarity index (NPI)  $NPI = \text{total number of carbon atoms} * \text{molecular weight number of carboxylate groups} \times 100$  of at least 500 or at least 900.

Kenbeek discloses the claimed composition made in the same or similar manner as the claimed composition, it will intrinsically possess the same physical characteristics including NPI value of at least 500 and at least 900 meeting the limitations of **claims 15 and 6** and a molecular weight of at least 3000 of **claim 7**. Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either

anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977)

Kenbeek '001 discloses the ester will have a kinematic viscosity at 100°C of from 30 to 1000 cSt . The examiner maintains that 1000 cSt is not patentably distinct from 1100 cSt thereby meeting the limitations of **claims 15 and 16** for kinematic viscosity of 1100 to 5000 mm<sup>2</sup>/s **and claim 5** of 1100 to 3500 mm<sup>2</sup>/s (C4 L16-24) See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976)"

Kenbeek '001 discloses the dimer fatty acid having a dimer content of 95% or more (C3 L52-57) meeting the limitation for a dimer fatty acid having a dimer content of greater than 94%.

Kenbeek '001 also discloses that additional additives may be incorporated into the lubricant composition such as sulphur or phosphorus containing EP/AW additive which are well known in the art. (C4 L38-45) meeting the limitations of **claims 9-10**.

Kenbeek '001 discloses the ester may be used in base fluids such as polyalphaolefins (C8 L45-50) for a base oil and meeting the limitation for an oil having a phosphorous level of no more than 0.08% (PAO has no phosphorous and other additives are optional and not required). Kenbeek '001 discloses the composition formulation of the complex ester additive with PAO thereby meeting the limitation for adding the ester.

Kenbeek '001 also discloses the composition for use in lubrication application such as gear oils, four stroke oils, functional fluids, transmission oil, automotive oil (meeting the limitation for addition of an automotive engine oil) and industrial gear oil, axle oil, fuel additives, compressor oil, greases, chain oils, metal working and metal rolling applications (C5 L1-10 and (C1 L12-16). Kenbeek '001 discloses the composition may be used as an additive (C4 L54) and is suitable for automotive gear oils, four stroke oils, fuel additives, etc. and multigrade gear oils (C4 L62-68 and C5 L12). Kenbeek '001 discloses the composition is suitable for heavy duty commercial vehicles and for passenger cars (C5 L36-40). Kenbeek discloses the ester lubricating composition overcomes problems associated with other products when used in a process for lubricating two stroke or rotary engines. (C1 L30-35 and C1 L58-68) As such, Kenbeek '001 discloses the method of addition of an automotive engine oil comprising a base oil and the claimed ester.

Kenbeek '001 discloses the claimed composition formed of the reaction of the claimed components which will therefore intrinsically provide anti-wear/wear reduction qualities to the oil and engine to which it is added. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)

A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body

of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

**Regarding new limitation for kinematic viscosity ranging from 1100 to 5000 mm<sup>2</sup>/s of claims 15 and 19 and 1100 to 4000mm<sup>2</sup>/s of claim 22:**

Kenbeek et al. does not expressly disclose the kinematic viscosity to be 1100 to 5000 or from 1100 to 4000 mm<sup>2</sup>/s at 100°C. Kenbeek '001 discloses the ester will have a kinematic viscosity at 100°C of from 30 to 1000 cSt . (C4 L16-27). The examiner maintains that 1000 cSt is not patentably distinct from 1100 cSt. Kenbeek discloses the materials to form the complex ester are selected in amounts to provide the designated kinematic viscosity (C4 L25-45) Kenbeek '001 discloses the ester may be used as a thickener for the lubricating composition (Abstract).

Kenbeek discloses a multi-grade oil (C5 L11-30) and functional fluid (C5 L1-10).

Kenbeek does not expressly disclose the kinematic viscosity of the ester thickener used to formulate the finished lubrication composition to be 1100-4000 mm<sup>2</sup>/s at 100°C.

Since the overall viscosity of the multigrade gear oil can be modified by the viscosity of the thickener used, the precise viscosity of the thickener would be considered a result effective variable by one having ordinary skill in the art at the time of the invention. As such, without a showing of unexpected results, the claimed viscosity

of the ester thickener cannot be considered critical and one of ordinary skill in the art at the time the invention was made would have optimized by routine experimentation the viscosity of the ester to obtain the desired viscosity of the finished lubricant composition.

The kinematic viscosity of the ester may be controlled by one of ordinary skill in the art by adjusting the amount of each reactant. The kinematic viscosity is a result effective variable. See MPEP § 2144.05 (B). Case law holds that "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." See *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

McGee (US 3,717,672) also discloses that one of ordinary skill in the art may product a complex ester having a desired viscosity by controlling the relative molar ratio of the glycol or polyglycol to the carboxylic acid. (C3 L20-25) McGee discloses the complex ester produced by such a method is suitable for use as a lubricating oil composition to produce a non corrosive ester oil (C2 L5-20)

Sumiejski et al. (US 5,750,477) discloses a lubricating composition for transmissions and functional fluids which comprises a viscosity modifier such as an ester (C19 L28-40) where the viscosity modifier has a kinematics viscosity at 100°C in the range of 200-4400 cSt and when added for a formulated functional fluid creates a shear stable fluid. (C19 L55-62 overlapping the claimed range of 1100-3500 and 1100 to 4000 mm<sup>2</sup>/s)

It would have been obvious to a person of ordinary skill in the art at the time of the invention to try to control the amount of each reactant to produce a desired kinematic viscosity of the ester thickener to be added to the lubricating composition in



the method of Kenbeek as disclosed by McGee to produce an ester with a kinematic viscosity in the range of 1100 to 3500 cSt, as this viscosity is suitable for viscosity modifiers for functional fluids and lubricating compositions as taught by Sumiejski, to be used as a thickener for the multigrade gear oil and functional fluid in the method of Kenbeek'001. See MPEP 2144.05(I): "In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976)."

Regarding Claims 3 and 19:

Modified Kenbeek '001 discloses the limitations set forth above. First, it is noted that since component (c) is optional, it need not be present and this limitation is satisfied.

Alternatively, Kenbeek discloses the C<sub>9</sub>-C<sub>18</sub> dicarboxylic acid (falling within the claimed range of C<sub>5</sub> to C<sub>18</sub>) is used in dimerized form in an amount of not more than 80% by weight. (C2 L55-63). This leaves the remaining aliphatic 9 to 18 carbon dicarboxylic acid as non dimerized thereby satisfying component (c).

Regarding Claim 21:

Kenbeek '001 discloses the limitations above set forth. Kenbeek also discloses an ester formed with neopentyl glycol as the polyfunctional alcohol (C3 L16-18). Since component (c) is optional, this limitation has been satisfied.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenbeek (US 6,462,001) in view of McGee (US 3,717,672)a applied to claims 3-7, and 9-10, 15 above further in view of Shaub et al. (US 4,479,883)

Regarding Claim 11

Modified Kenbeek '001 discloses the limitations set forth above. Kenbeek '001 also discloses that additional additives may be incorporated into the lubricant composition such as sulphur or phosphorus containing EP/AW additive which are well known in the art. (C4 L38-45)

Kenbeek '001 does not expressly disclose the further anti-wear additive is zinc dialkyldithiophosphate.

Shaub et al. discloses a lubricating oil composition containing an ester of polycarboxylic acid and glycol with a metal dithiocarbamate improves friction reducing properties while retaining other desired lubricant properties. (C2 L5-16). Shaub discloses the ester to be from a dimer fatty acid and an ethylene glycol (C4 L43-45 and C4 L43). Shaub further discloses the metal dithiocarbamate to be zinc dialkyl dithiophosphate. (C6 L16).

It would have been obvious to a person having ordinary skill in the art at the time of invention to add the zinc dialkyl dithiophosphate to the ester composition of Kenbeek '001 as Kenbeek '001 contemplates an anti-wear additive comprising sulphur and phosphorous and doing so would improve the friction reducing properties of the composition of Kenbeek '001 while maintaining the other lubricant qualities.

6. Claim 11 is alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Kenbeek (US 6,462,001) in view of McGee (US 3,717,672) applied to claims 4-7, and 9-10, 15 above further in view of Papay et al. (US 4,293,432) and Jokinen et al. (US 4,783,274)

Regarding Claim 11:

Modified Kenbeek '001 discloses the limitations set forth above. Kenbeek also discloses that additional additives may be incorporated into the lubricant composition such as sulphur or phosphorus containing EP/AW additive which are well known in the art. (C4 L38-45) Kenbeek '001 discloses gear oil additive packages commercially available such as by Hitec – Ethyl Corp. or Lubrizol (C4 L38-50)

Kenbeek '001 does not expressly disclose the further anti-wear additive is zinc dialkyldithiophosphate.

Papay et al. discloses a lubricating oil for engines (Abstract) comprising esters as a synthetic oil component (C3 L40-52) and further comprising zinc dihydrocarbyldithiophosphate as a preferred additive (Papay C4 L1-12) Jokinen et al (US 4,783,274) discloses a hydraulic fluid which contains an additive of zinc dialkyldithiophosphate made by Lubrizol (C5 L19-25).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a commercially available extreme pressure/ anti wear additive which is commercially available such as ZDDP which is available from Lubrizol as ZDDP is a preferred additive in engine oils and comprises phosphorus and sulfur which is expressly contemplated by Kenbeek '001. Further using said additive amounts to nothing more than use of a known substance in a known environment to achieve an entirely expected result.

7. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenbeek (US 6,462,001) in view of McGee (US 3,717,672) as applied to claim 15 above, and further in view of Young et al. (US 3,202,701)

Regarding Claim 21:

Modified Kenbeek '001 discloses the limitations set forth above. Noting that component (c) is optional, this limitation has been satisfied.

Nonetheless, Kenbeek also discloses an ester formed with neopentyl glycol as the polyfunctional alcohol (C3 L16-18) and a dimer acid and a dicarboxylic acid (P3 L62) and a C9-C18 polyfunctional carboxylic acid. (C2 L56-60).

Kenbeek '001 does not expressly disclose to the oil wherein the resultant ester is the reaction product of the neopentyl glycol with dimer acid and azeleic acid.

Young et al. discloses a complex ester of a mixture of acids and neopentyl glycol which produces a lubricant which remains haze free at low temperatures and has heat stability with good viscosity. (C2 L30-37 and L53) The ester is formed by either a one state or two stage reaction (C4 L10-11). Young et al. discloses that the acid mixtures may comprise dicarboxylic acid and azelaic acid (C2 L56-65).

It would have been obvious to a person having ordinary skill in the art at the time of invention to add azelaic acid of Young et al to the reaction mixture of Kenbeek '001 as Young teaches that said acid is useful in a complex ester mixture and will reduce haze at low temperature and impart heat stability with good viscosity.

***Response to Arguments***

8. Applicant's amendments to the claims filed Jun 1, 2010 overcome the rejection brought under Section 103(a) relying on Kenbeek EP0335013. Applicant's arguments filed June 1, 2010 have been fully considered but they are not persuasive.
9. Applicant argues Kenbeek '001 does not disclose the reactant of (c) of the independent claims for at least one of an aliphatic dicarboxylic acid having 5 to 18 carbon atoms and an aliphatic monocarboxylic acid having 5 to 24 carbon atoms. Based upon the claim language, either an aliphatic dicarboxylic acid or an aliphatic monocarboxylic acid is required, or both. Kenbeek '001 does disclose this reactant as set forth in the above rejection. Kenbeek discloses the chain stopping agent is an aliphatic monocarboxylic acid having from 7 to 22 carbon atoms meeting the limitation for at least one of an aliphatic dicarboxylic acid having 5 to 18 carbon atoms and an aliphatic monocarboxylic acid having 5 to 24 carbon atoms (C6 L27-35). Kenbeek '01 also discloses that the composition may be formed from poly functional carboxylic acids comprising aliphatic dicarboxylic acid having 9 to 18 carbon atoms, dimerised dicarboxylic acid and *mixtures thereof*. (C6 L20-27) which would meet the limitation for both.
10. Applicant argues the new range of kinematic viscosity of 1100 to 5000 and 1100 to 4000 mm<sup>2</sup>/s are not disclosed by Kenbeek '001. As set forth above, the 1100 and 1000 are so close as to not be patentably distinct. Further, as more fully set forth above, the examiner maintains that the kinematic viscosity is a result effective variable. Finally, since the ester is made by the claimed method using the claimed reactants, the

reaction product will be the claimed ester with a kinematic viscosity meeting or overlapping the claimed range. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990)

### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAMELA WEISS whose telephone number is (571)270-7057. The examiner can normally be reached on Mon.-Thur. 8:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/pw/

/Glenn A Caldarola/  
Supervisory Patent Examiner, Art  
Unit 1797